UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,228	03/23/2004	Kimihiko Nishioka	050931-0308962	1701

909 7590 03/23/2010
PILLSBURY WINTHROP SHAW PITTMAN, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER	
CUTLER, ALBERT H	

ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
03/23/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/806,228	NISHIOKA ET AL.	
	Examiner	Art Unit	
	ALBERT H. CUTLER	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *49,50,56,58,62,73/49,73/62,74/49,74/62,75/49 and 75/62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49,50,56,58,62,73/49,73/62,74/49,74/62,75/49 and 75/62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to communication filed on December 23, 2009

Response to Arguments

2. Applicant's arguments filed December 23, 2009 have been fully considered but they are not persuasive.

3. Applicant argues that the claims required that the optical system compris[es] no lens element that moves along an optical axis. So, to combine Yuyuma '408, which specifically teaches to mechanically moving the lens along the optical axis, with Berman '330, which specifically teaches an optical system that changes focus by varying an electric field between electrodes - and not by mechanically moving the lens - clearly changes the principle of operation of Yuvuma '408. As such, the combination of Yuyuma '408 and Berman '330 is clearly improper and can not sustained.

4. The Examiner respectfully disagrees. There is no disclosure in Yuyama or Berreman that teaches away from the suggested combination. Yuyama is silent with respect to a variable optical element that does not move along the optical axis. Berreman addresses the optical system embodied in Yuyama in which optical elements are moved along an optical axis (Berreman, column 1, lines 10-18). Considering this prior art optical arrangement, Berreman proposes a novel variable optical system which does not include a lens element that moves along the optical axis (Berreman, column 2, lines 18-26, column 3, line 59 through column 4, line 3). In fact, Berreman teaches that the variable optical element can “serve as an optical lens” and be used in “cameras”,

column 2, lines 18-26. Therefore, in addition to the desirable elimination of a mechanical drive system to drive lenses along the optical axis (Berreman, column 1, lines 10-18), the combination of Yuyama and Berreman only involves a simple substitution of one known element for another to obtain predictable results.

5. In KSR, the Supreme Court particularly emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art" and discussed circumstances in which a patent might be determined to be obvious. Importantly, the Supreme Court reaffirmed principles based on its precedent that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." The Supreme Court stated that there are "[t]hree cases decided after Graham [that] illustrate this doctrine." **(1) "In United States v. Adams, . . . [t]he Court recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result."** (2) "In Anderson 's-Black Rock, Inc. v. Pavement Salvage Co., . . . [t]he two [pre-existing elements] in combination did no more than they would in separate, sequential operation." (3) "[I]n Sakraida v. AG Pro, Inc., the Court derived . . . the conclusion that when a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious." The principles underlining these cases are instructive when the question is whether a patent

application claiming the combination of elements of prior art would have been obvious. See MPEP § 2141(I).

6. Furthermore, the modification of Yuyama based upon Berreman would not change the principle operation (i.e. camera operation) of Yuyama as it simply involves substituting one variable optical system for another.

7. Applicant argues that Berman does not teach "wherein a member which makes variable a focal point of said optical element having the variable focal length characteristic is composed of a single layer", as recited in amended claims 49 and 62.

8. The Examiner respectfully disagrees. This is a broad limitation. Berreman teaches "two bodies of liquid crystal material" which produce a variable focusing effect, column 3, line 59 through column 4, line 3. One body is located between layers 25 and 28 and the other body is located between layers 26 and 29, as shown in figure 2 and detailed in column 3, lines 62-67. Each body of liquid crystal material is a member which makes variable a focal point of said optical element having the variable focal length characteristic and is composed of a single layer. Berreman teaches that the device of figure 2 may be viewed as comprising two variable focus crystal lenses, column 3, lines 59-62. Each of these variable focus crystal lenses constitutes a member which makes variable a focal point of said optical element having the variable focal length characteristic composed of a single layer.

9. Therefore, the rejection is maintained by the Examiner.

Claim Rejections - 35 USC § 112

10. All rejections previously made under 35 USC 112 are hereby removed in view of Applicant's response.

Claim Rejections - 35 USC § 103

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claims 49, 50, 58, 62, 73/49 and 73/62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuyama et al. (US 5,825,408) in view of Berreman (US 4,190,330).

13. The response to Applicant's arguments, as discussed above, is hereby incorporated into the rejection of claims 49, 50, 58, 62, 73/49 and 73/62 by reference.

Consider claim 49, Yuyama et al. teach:

An optical apparatus (figures 5 and 6) having a telephone function (Figures 5 and 6) depict a portable television receiver which has a camera section (106, column 9, lines 54-64). Within the device, image data can be modulated into an audio signal and sent over a telephone line (column 10, lines 25-28), and also received via a receiving unit for a telephone (column 10, lines 47-55). Note that in alternate embodiments shown in figures 4 and 17, the telephone receiver can be connected to the portable television receiver, and data can be output directly over a telephone line.) comprising:

an optical system (column 9, lines 44-64) with an optical element ("lens") having a variable focal length characteristic, that uses no polarizing plate, and forms an image whose brightness is independent of a polarized direction of incident light (The lens is used to focus images to be taken by the camera section, and can be moved in order to zoom in and out, column 10, lines 33-37. Yuyama et al. teaches that the lens (i.e. the optical element) of the camera section is moved along the optical axis in order to enlarge and reduce the image of the subject (i.e. to zoom in and out by varying the focal length). Therefore, the lens has a variable focal length characteristic. As the optical element is a lens, it requires no polarizing plate, and forms an image whose brightness is independent of a polarized direction of incident light.);

an image pickup device for picking up an image formed by said optical system (CCD, column 4, lines 19-24. See also, column 9, lines 59-64 for the recording of images.);

a display (105) for displaying a picked up image (column 9, lines 61-64);

and a memory ("recording section") for storing the picked up image (column 9, lines 59-61).

However, Yuyama et al. does not explicitly teach that the optical system contains no lens element that moves along the optical axis, or that a member which makes variable a focal point of said optical element having the variable focal length characteristic is composed of a single layer.

Berreman similarly teaches of an optical system of a camera having a variable focal length (See column 1, lines 6-18 and column 2, lines 18-26.).

However, in addition to the teachings of Yuyama et al., Berreman teaches that the optical system contains no lens element that moves along the optical axis (See figure 2, column 2, lines 60-64, column 3, lines 43-47 and column 3, line 59 through column 4, line 3.). The variable focusing device of Berreman (figure 2) produces a variable focusing effect by varying an electrical field between electrodes (24) in order to change the refractive index of liquid crystal material present in the focusing device (column 3, lines 43-47, column 3, line 67 through column 4, line 3). The optical device (figure 2, column 2, lines 50-64) contain no polarizing plate and produces a variable focusing effect independent of the polarization of incident light (column 3, line 67 through column 4, line 3).

Berreman further teaches that a member which makes variable a focal point of said optical element having the variable focal length characteristic is composed of a single layer (Berreman teaches "two bodies of liquid crystal material" which produce a variable focusing effect, column 3, line 59 through column 4, line 3. One body is located between layers 25 and 28 and the other body is located between layers 26 and 29, as shown in figure 2 and detailed in column 3, lines 62-67. Each body of liquid crystal material is a member which makes variable a focal point of said optical element having the variable focal length characteristic and is composed of a single layer. Berreman teaches that the device of figure 2 may be viewed as comprising two variable focus crystal lenses, column 3, lines 59-62. Each of these variable focus crystal lenses constitutes a member which makes variable a focal point of said optical element having the variable focal length characteristic composed of a single layer.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to replace the variable focus lens taught by Yuyama et al. with the variable focus element taught by Berreman for the benefit of eliminating a mechanical drive unit necessary to change the focus of the optical device (Berreman, column 1, lines 10-15).

Consider claim 50, and as applied to claim 49 above, Yuyama et al. further teach a viewfinder (105) for determining an image pickup range (column 9, lines 61-64, column 5, lines 21-35).

Consider claim 58, and as applied to claim 49 above, Yuyama et al. further teach a microprocessor (CPU, 34, figure 3, column 6, lines 41-48).

Consider claim 62, Yuyama et al. teach:

An optical apparatus (figures 5 and 6) having a telephone function (Figures 5 and 6 depict a portable television receiver which has a camera section (106, column 9, lines 54-64). Within the device, image data can be modulated into an audio signal and sent over a telephone line (column 10, lines 25-28), and also received via a receiving unit for a telephone (column 10, lines 47-55). Note that in alternate embodiments shown in figures 4 and 17, the telephone receiver can be connected to the portable television receiver, and data can be output directly over a telephone line.) comprising:

an optical system (column 9, lines 44-64) having a focal point adjusting function which comprises an optical element ("lens") having a variable focal length characteristic, uses no polarizing plate and forms an image whose brightness is independent of a polarized direction of incident light (A lens (i.e. an optical element) is used to focus images to be taken by the camera section, and can be moved in order to zoom in and out, column 10, lines 33-37. Yuyama et al. teaches that the lens (i.e. the optical element) of the camera section is moved along the optical axis in order to enlarge and reduce the image of the subject (i.e. to zoom in and out by varying the focal length). Therefore, the lens has a variable focal length characteristic. As the optical element is a lens, it requires no polarizing plate, and forms an image whose brightness is independent of a polarized direction of incident light.);

an image pickup device for picking up the image formed by said optical system (CCD, column 4, lines 19-24. See also, column 9, lines 59-64 for the recording of images.);

a display (105) for displaying a picked up image (column 9, lines 61-64);

a memory ("recording section") for storing the picked up image (column 9, lines 59-61); and

a microprocessor (CPU, 34, figure 3, column 6, lines 41-48).

However, Yuyama et al. does not explicitly teach that the optical system contains no lens element that moves along the optical axis, or that a member which makes variable a focal point of said optical element having the variable focal length characteristic is composed of a single layer.

Berreman similarly teaches of an optical system of a camera having a variable focal length (See column 1, lines 6-18 and column 2, lines 18-26.).

However, in addition to the teachings of Yuyama et al., Berreman teaches that the optical system contains no lens element that moves along the optical axis (See figure 2, column 2, lines 60-64, column 3, lines 43-47 and column 3, line 59 through column 4, line 3.). The variable focusing device of Berreman (figure 2) produces a variable focusing effect by varying an electrical field between electrodes (24) in order to change the refractive index of liquid crystal material present in the focusing device (column 3, lines 43-47, column 3, line 67 through column 4, line 3). The optical device (figure 2, column 2, lines 50-64) contain no polarizing plate and produces a variable focusing effect independent of the polarization of incident light (column 3, line 67 through column 4, line 3).

Berreman further teaches that a member which makes variable a focal point of said optical element having the variable focal length characteristic is composed of a single layer (Berreman teaches "two bodies of liquid crystal material" which produce a variable focusing effect, column 3, line 59 through column 4, line 3. One body is located between layers 25 and 28 and the other body is located between layers 26 and 29, as shown in figure 2 and detailed in column 3, lines 62-67. Each body of liquid crystal material is a member which makes variable a focal point of said optical element having the variable focal length characteristic and is composed of a single layer. Berreman teaches that the device of figure 2 may be viewed as comprising two variable focus crystal lenses, column 3, lines 59-62. Each of these variable focus crystal lenses

constitutes a member which makes variable a focal point of said optical element having the variable focal length characteristic composed of a single layer.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to replace the variable focus lens taught by Yuyama et al. with the variable focus element taught by Berreman for the benefit of eliminating a mechanical drive unit necessary to change the focus of the optical device (Berreman, column 1, lines 10-15).

Consider claim 73, and as applied to claims 49 and 62, respectively, above, Yuyama et al. does not explicitly teach the member which makes the focal point variable.

Berreman further teaches that said member which makes the focal point variable is a liquid crystal layer (The member is a body (i.e. layer) of liquid crystal material, column 3, line 59 through column 4, line 3.).

14. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yuyama et al. in view of Berreman, as applied to claims 49 and 62 above, and further in view of Hamblen (US 5,745,289).

15. The response to Applicant's arguments, as discussed above, is hereby incorporated into the rejection of claim 56 by reference.

Consider claim 56, and as applied to claim 49 above, the combination of Yuyama et al. and Berreman does not explicitly teach that the optical apparatus comprises a diffractive optical element.

Hamblen similarly teaches a lens (L1, figure 1) of an optical system of a camera (See column 1, lines 12-17 and lines 64-67, column 3, lines 18-43).

However, in addition the teachings of Yuyama et al., Hamblen teaches that a lens (L1, figure 1) of the optical system comprises a diffractive optical element ("DOE", column 1, lines 5-17, column 3, lines 18-20).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a diffractive optical element as taught by Hamblen in the optical system taught by the combination of Yuyama et al. and Berreman for the benefit of correcting for spherical and chromatic aberration as well as aberration due to thermal expansion and contraction (Hamblen, column 1, lines 12-17).

16. Claims 74/49 and 74/62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuyama et al. in view of Berreman, as applied to claims 49 and 62 above, and further in view of Levy (US 5,708,522).

Consider claim 74, and as applied to claims 49 and 62, respectively, above, Yuyama et al. does not explicitly teach the member which makes the focal point variable.

Berreman further teaches that said member which makes the focal point variable is a liquid crystal layer (The member is a body (i.e. layer) of liquid crystal material, column 3, line 59 through column 4, line 3.).

However, the combination of Yuyama et al. and Berreman does not explicitly teach that said member which makes the focal point variable is a polymer dispersive liquid crystal.

Levy is similar to Yuyama et al. and Berreman in that Levy teaches using a variable optical element (6, figure 2E) in a camera system (column 9, lines 1-42).

However, in addition to the teachings of Yuyama et al. and Berreman, Levy teaches that the variable optical element can comprise a polymer dispersive liquid crystal layer (column 9, lines 39-42).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the member taught by the combination of Yuyama et al. and Berreman comprise a polymer dispersive liquid crystal layer as taught by Levy as a way of combining prior art elements according to known methods to yield predictable results, and for the benefit of limiting the amount of parts by eliminating the need for a polarizer (Levy, column 9, lines 39-42).

17. Claims 75/49 and 75/62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuyama et al. in view of Berreman, as applied to claims 49 and 62 above, and further in view of Kikuchi (US 5,052,791).

Consider claim 75, and as applied to claims 49 and 62, respectively, above, Yuyama et al. does not explicitly teach the member which makes the focal point variable.

Berreman further teaches that said member which makes the focal point variable is a liquid crystal layer (The member is a body (i.e. layer) of liquid crystal material, column 3, line 59 through column 4, line 3.).

However, the combination of Yuyama et al. and Berreman does not explicitly teach that said member which makes the focal point variable is a twist nematic liquid crystal layer.

Kikuchi similarly teaches an optical system for a camera (figure 4), which optical system has an optical element (17) which allows a user to vary the magnification of an image (column 1, lines 8-12, column 8, line 22 through column 10, line 25). Kikuchi teaches that the optical element comprises a vari-focal lens component having a variable optical characteristic (See figures 2a and 2b, column 3, line 52 through column 4, line 3, column 8, lines 30-32, column 9, line 30 through column 10, line 6. The optical element (17) varies its optical characteristics depending on whether or not a voltage is applied in order to switch between wide and tele fields of view.).

However, in addition to the teachings of Yuyama et al. and Berreman, Kikuchi teaches that said member which makes the focal point variable is a twist nematic liquid crystal layer (TN liquid crystal layer, 2, figures 2A and 2B, column 3, line 67 through column 4, line 3).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the liquid crystal layer taught by the combination of Yuyama et al. and Berreman be a twist nematic liquid crystal layer as taught by Kikuchi as a way of combining prior art elements according to known method to yield predictable results such as providing a variable magnification optical system at a low cost (Kikuchi, column 2, lines 50-54).

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALBERT H. CUTLER whose telephone number is (571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sinh Tran/
Supervisory Patent Examiner, Art Unit 2622

AC